PATENT APPLICATION
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**IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE**

INVENTOR(S): Darwin Mitchel Hanks. **CONFIRMATION NO:** 8149

SERIAL NO.: 10/661,752 **GROUP ART UNIT:** 2627

FILED: September 12, 2003 **EXAMINER:** Lamb, Christopher Ray

SUBJECT: ESTABLISHING A BASELINE SIGNAL FOR APPLICATION TO AN ACTUATOR WITHIN AN OPTICAL DISK DRIVE

APPELLANTS'/APPLICANTS' OPENING BRIEF ON APPEAL

1. REAL PARTY IN INTEREST.

The real party in interest is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holding, LLC.

2. Related Appeals And Interferences.

There are no other appeals or interferences known to Appellants, Appellants' legal representative or the Assignee which will affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

3. Status Of Claims.

Claims 1-5, 9, 11, 13-18, 23, 25-29, 34-39, 42, 43, and 45-48 are pending in the present application. Claims 6-8, 10, 12, 19-22, 24, 30-33, 40, 41, and 44 have been cancelled. The rejections of all pending claims are appealed.

4. Status Of Amendments.

No amendments to the Specification or Claims have been filed after the final action was entered.

5. Summary Of Claimed Subject Matter.

Claim 45 recites a system for establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within the optical disk drive. The system comprises a baseline actuator positioning routine configured to apply actuator control signals to the actuator to step the actuator through a full range of focus. *See, e.g.,* Specification, paragraph [0023], page 7, line 33 through page 8, line 14. A SUM signal is obtained at each step. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14. The SUM signal is a sum of signals received from a plurality of focus sensors. *See, e.g.,* Specification, paragraphs [0018], [0020], and [0026], page 5, line 12 through page 6, line 32, page 8, line 27 through page 9, line 4, and Fig. 1, element 126. One of the obtained SUM signals is identified. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14. The baseline actuator control signal is set according an applied actuator control signal which resulted in the identified one of the obtained SUM signals. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14.

Claim 46 recites a processor-readable medium comprising processor-executable instructions for focusing optics within an optical disk drive. The processor-executable instructions include instructions for applying actuator control signals to the actuator to step the actuator through a full range of focus and obtaining a SUM signal at each step. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14. The SUM signal being a sum of signals received from a plurality of focus sensors. *See, e.g.,* Specification, paragraphs [0018], [0020], and [0026], page 5, line 12 through page 6, line 32, page 8, line 27 through page 9, line 4, and Fig. 1, element 126. Also included are instructions for identifying one of the obtained SUM signals and setting the baseline actuator control signal according an applied actuator control signal which resulted in the identified one of the obtained SUM signals. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14.

Claim 47 recites a method of establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within the optical disk drive. The method includes applying actuator control signals to the actuator to step the actuator through a full range of focus. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14.. A SUM signal is obtained at each step. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14.. The SUM signal being a sum of signals received from a plurality of focus sensors. *See, e.g.,* Specification, paragraphs [0018], [0020], and [0026], page 5, line 12 through page 6, line 32, page 8, line 27 through page 9, line 4, and Fig. 1, element 126. One of the obtained SUM signals is identified. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14.. The baseline actuator control signal is set according an applied actuator control signal which resulted in the identified one of the obtained SUM signal. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14..

Claim 48 recites a system for establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within an optical disk drive. The system includes means for applying actuator control signals to the

actuator to step the actuator through a full range of focus. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14.. The system includes means for obtaining a SUM signal at each step. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14.. The SUM signal is a sum of signals received from a plurality of focus sensors. *See, e.g.,* Specification, paragraphs [0018], [0020], and [0026], page 5, line 12 through page 6, line 32, page 8, line 27 through page 9, line 4, and Fig. 1, element 126. The system includes means for identifying one of the obtained SUM signals and means for setting the baseline actuator control signal according an applied actuator control signal which resulted in the identified one of the obtained SUM signal. *See, e.g.,* Specification, paragraph [0023], line 33 through page 8, line 14..

6. GROUNDS FOR REJECTION TO BE REVIEWED.

A. Claims 45-48 stand rejected under 35 USC §103 as being unpatentable over USPN 5,808,983 issued to Tsutsui in view of US Pub 2002/0105865 to Kusumoto.

B. Claim 13 stands rejected under 35 USC §103 as being unpatentable over Tsutsui in view of Kusumoto and in further view of USPN 5,164,932 issued to Fennema.

C. Claims 1, 4, 5, 14, 17, 18, 23, 25, 28, 29, 35, 38, 39, and 43 stand rejected under 35 USC §103 as being unpatentable over USPN 5,742,573 issued to Hajjar in view of Tsutsui and in further view of Kusumoto.

D. Claims 2, 3, 15, 16, 26, 27, 36, and 37 stand rejected under 35 USC §103 as being unpatentable over Hajjar in view of Tsutsui, in view of Kusumoto and in further view of USPN 5,477,333 issued to Shoda.

E. Claims 1, 4, 9, 14, 17, 25, 28, 34, 35, and 38 stand rejected under 35 USC §103 as being unpatentable over US Pub 2002/0089906 to Faucett in view of Tsutsui and in further view of Kusumoto.

7. ARGUMENT.

Grounds For Rejection A – Claims 45-48 stand rejected under 35 USC §103 as being unpatentable over USPN 5,808,983 issued to Tsutsui in view of US Pub 2002/0105865 to Kusumoto.

Tsutsui describes determining an offset value added to a focusing error signal that is used when focusing an optical storage medium. *See* Tsutsui, title and abstract. Tsutsui discusses searching for an optimum focus offset value for a predetermined record layer of an optical disk. *See* Tsutsui, abstract. Tsutsui's optimum offset value corresponds to an offset value with which the amplitude of a tracking error signal is at a maximum. *See* Tsutsui, abstract. This offset value is stored for that layer. *See* Tsutsui, abstract. Later, when action on that layer is to be taken, focus jumping to that layer is performed and the offset value for that layer is obtained and added to a focus error signal. *See* Tsutsui, abstract.

In other words, to access a particular layer, Tsutsui teaches applying an initial baseline signal to a focusing servo circuit – this baseline signal takes the form of some undisclosed number of jump pulses to need to cause an approximate focus on that layer. Tsutsui, col. 7, lines 3-6. Once the baseline signal has been applied, the pre-stored focus offset value for that layer is read. An offset signal corresponding to that offset value is generated, added to a focusing error signal, and supplied to the focusing servo circuit to realize an "optimum focusing condition." Tsutsui, col. 7, lines 7-18.

Claims 45 is directed to a system for establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within the optical disk drive. The system includes a baseline actuator positioning routine that is configured to do the following:

1. apply actuator control signals to the actuator to step the actuator through a full range of focus;

2. obtain a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors;
3. identify one of the obtained SUM signals; and
4. set the baseline actuator control signal according an applied actuator control signal which resulted in the identified one of the obtained SUM signals.

In an initial appeal brief filed October 30, 2007, the Appellant explained that Tsutsui failed to teach or suggest (a) applying actuator control signals to the actuator to step the actuator through a full range of focus and (b) obtaining a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors. The Examiner responded by reopening prosecution by setting forth new grounds for rejection on an action mailed January 25, 2008.

At pages 14-15 of the January 25 action, the Examiner disagreed with the Applicant's explanation that Tsutsui fails to teach or suggest apply actuator control signals to the actuator to step the actuator through a full range of focus. In particular, the Examiner states:

> Applicant's specification, on page 8, lines 4-7, discloses: "The baseline actuator positioning routine 210 is configured to move the optics 114 through a full range of focus, i.e. from focusing too near to focusing too far away."
>
> Therefore the specification defines "a full range of focus" as moving the actuator from focusing too near to focusing too far away.
>
> This is precisely what Tsutsui discloses. See, for example, Fig. 7: in order to find the maximum RF signal, Tsutsui steps the actuator through a series of offsets. Since the in focus position is the maximum, Tsutsui begins at an out of focus (or focused "too near") position and steps through the offsets to a focused "too far" position, identifying the optimum position afterwards.

The Appellant respectfully disagrees. The Examiner's interpretation of the phrase "full range of focus" is unreasonably broad. The example in the Specification of "from focusing too near to focusing too far away" simply explains a possible direction of the focus shift. That shift, in the example, starts one extremity of the full range that is too near and travels to the other extremity of the full range that is too far. Alternatively, the shift could travel from too far to too near. Contrary to the Examiner's argument, the positions defined by the descriptors "too far" and "too near" do not limit the actuator's "full range of focus" to a subset of the true full range of focus. Instead, the position defined by the descriptors define the extremities of the actuators true full range of focus.

Furthermore, the Examiner's interpretation is unreasonable in light of the Specification and the common definitions of the terms "full" and "range." Merriam-Webster defines the term "full" as used in the context of Claim 1 as "complete especially in detail, number, or duration." Range is defined as "the space or extent included, covered, or used" or "scope." The full range of focus of the actuator then is the complete extent included in the possible focal positions or points of the actuator.

The Specification provides two examples that distinguish between stepping the actuator between a full range of focus and a subset of that full range.

> [0022] In a first exemplary implementation, the baseline actuator positioning routine 210 is configured to apply an initial voltage to the actuator coil 128 to move the focal point of the optics 114 away from the disk 102 (Fig. 1) by an amount calculated to counteract an initial design assumption typically built into the actuator coil. The design assumption is that the focus point should be inside the plastic disk 102, to facilitate data reading and writing. However for labeling the disk, the focus point should be on the disk surface. Accordingly, a baseline voltage may be estimated to result in movement of the actuator coil 128, and an associated change in the focal point of the optics 114, which retracts the focal point by an appropriate fraction of the thickness of the optical disk 102, thereby causing the focal point to be (approximately) on the surface 106 of the disk 102.
>
> [0023] The above first exemplary implementation of the baseline positioning routine 210 makes a first assumption that the optics 114 is focused on a point a known depth beneath the surface 106 of the disk 102, and a second assumption that a voltage can be calculated to move the focal point to the surface of the disk. A second implementation of the baseline positioning routine 210 is based on the use of objective measurements. The baseline actuator positioning routine 210 is configured to move the optics 114 through

> a full range of focus, i.e. from focusing too near to focusing too far away. The baseline actuator positioning routine 210 is configured to step the actuator coil 128 through this range incrementally, and to record values obtained from the SUM. Upon completion of the application of the range of voltages to the actuator coil 128, and movement of the focus optics, the maximum value of the SUM signal is recorded. This value may be assumed to have occurred when the optics was approximately in focus; additionally, the voltage which resulted in the position of the optics may be taken as the baseline voltage.

Specification, paragraph's [0022]-[0023].

According to paragraph [0022], the actuator is stepped between a first position in which the focal point is presumed to be inside the plastic disk to a second position in which in which the focal point is estimated to be on the surface of the disk. In paragraph [0023], the baseline "actuator positioning routine 210 is configured to move the optics 114 through a full range of focus." Logically, this "full range of focus" extends beyond the limited subset of focal positions mentioned in paragraph [0022].

With this in mind, the Examiner asserted that Tsutsui, col. 10, lines 34-50 teaches applying actuator control signals to an actuator to step the actuator through a full range of focus. That passage is reproduced below:

> While, in the description above, an optimum point (maximum value) is detected by the so-called mountain-climbing method, the optimum point may be determined otherwise in such a manner as illustrated, for example, in FIG. 7. In particular, in the method illustrated in FIG. 7, the offset signal is successively varied by α to a sample the tracking error signal for the entire period from S_0 to Sn first. Then, in this instance, the offset signal which corresponds to a point of a sudden ascending variation of the tracking error signal obtained by the sampling is detected as Sm_1 whereas the offset signal which corresponds to a point of a sudden descending variation of the tracking error signal is detected as Sm_2. Then, a middle point between the variation points Sm_1 and $Sm_2$is determined as an optimum point (adjustment point).

Tsutsui, col. 10, lines 34-50.

To summarize, the cited passage discusses successfully varying an offset signal, S, that is added to a focusing error signal. The offset signal is varied between So and Sn. While doing so, the offset signals Sm_1 and Sm_2 corresponding to a sudden

ascending and descending variation of a tracking error signal are identified. The middle point between Sm_1 and Sm_2 is then identified.

Claim 45 recites applying actuator control signals to the actuator to step the actuator through a full range of focus. For example, imagine a telescope whose focus can be adjusted between a relatively close range of a few meters and infinity. The particular endpoints of the focus range are dependent upon the particular specifications of the optics being used. Claim 45 recites applying control signals to an actuator to step through such a full range of focus. As discussed above, Tsutui's offset signal is added to a focus error signal that is used to focus on a particular layer of an optical disk. As such, one of skill in the art will realize that the offset signal is used to fine tune a focus and is minimal in scale when compared to Tsutsui's focus error signal.

Varying Tsutsui's offset signal between So and Sn steps Tsutsui's focusing servo circuit through much less than a **full** range of focus. To step through a full range of focus would require varying Tsutsui's focus error signal over a much larger scale. As described above, a series of jump signals are applied to Tsutsui's focusing servo circuit to move the focus at least approximately to a particular layer. The offset signal is added to a focusing error signal to fine tune that focus on the layer. Plainly, this fine tuning is significantly smaller in scale than the jump pulses and therefore is **not** used to step Tsutsui's focusing servo circuit through a **full** range of focus.

To explain in another fashion, Tsutsui describes a system whose focus has a range such that it can focus on one layer of an optical disk and then be changed to focus on a different layer of that disk. Stepping through a full range of focus requires at least moving the focus from one layer to the other. Stepping the offset signal through a range to fine tune the focus on a particular layer will not cause Tsutsui's focusing servo circuit to focus on a different layer. As such, stepping the offset signal does not step Tsutsui's focusing servo circuit through a **full** range of focus.

Consequently, Tsutsui does not teach or suggest teaches applying actuator control signals to an actuator to step the actuator through a full range of focus. Kusumoto is silent on this point.

The Examiner asserts that Tsutsui, col. 14, lines 25-45 teaches obtain an RF signal at each step but admits that the RF signal received is not a sum of signals received from a plurality of focus sensors. Remember, Claim 1 recites applying actuator control signals to step an actuator through a full range of focus – an act not taught by Tsutsui. Because Tsutsui does not teach stepping an actuator through a full range of focus, logic dictates that Tsutsui also does not teach obtaining signal of any particular type at **each step**. Again, Kusumoto is silent on this point. Even if Kusumoto teaches the generation of a SUM signal from signals received from a plurality of sensors, the combination of Tsutsui and Kusumoto still fails to teach or suggest obtaining a SUM signal at each step as recited in Claim 45.

For at least these reasons, Claim 45 and Claims 1-5, 9, 11, and 13 which depend from Claim 45 are patentable over Tsutsui alone and when combined with Kusumoto.

Claims 46 recites a processor-readable medium comprising processor-executable instructions for focusing optics within an optical disk drive. The processor-executable instructions include instructions for the following:

1. applying actuator control signals to the actuator to step the actuator through a full range of focus
2. obtaining a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors;
3. identifying one of the obtained SUM signals; and
4. setting the baseline actuator control signal according an applied actuator control signal which resulted in the identified one of the obtained SUM signals.

As with Claim 45, Tsutsui does not teach or suggest (a) applying actuator control signals to the actuator to step the actuator through a full range of focus or (b) obtaining a SUM signal at each step. For at least these reasons, Claim 46 is patentable over the cited references as are Claims 14-18, and 23 which depend from Claim 46.

Claims 47 recites a method of establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within the optical disk drive. The method includes the following:

1. applying actuator control signals to the actuator to step the actuator through a full range of focus;
2. obtaining a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors;
3. identifying one of the obtained SUM signals;
4. setting the baseline actuator control signal according an applied actuator control signal which resulted in the identified one they obtained SUM signals.

As with Claim 45, Tsutsui does not teach or suggest (a) applying actuator control signals to the actuator to step the actuator through a full range of focus or (b) obtaining a SUM signal at each step. For at least these reasons, Claim 47 is patentable over the cited references as are Claims 25-29 and 34 which depend from Claim 47.

Claims 48 is directed to a system for establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within an optical disk drive, the system includes various means for implementing the method of Claims 47. For at least the same reasons Claim 47 is patentable so are Claim 48 and Claims 35-39 and 43 which depend from Claim 48.

Grounds For Rejection B – Claim 13 stands rejected under 35 USC §103 as being unpatentable over Tsutsui in view of Kusumoto and in further view of USPN 5,164,932 issued to Fennema.

Claim 13 depends from Claim 45 and is patentable based at least in part on that dependency.

Grounds For Rejection C – Claims 1, 4, 5, 14, 17, 18, 23, 25, 28, 29, 35, 38, 39, and 43 stand rejected under 35 USC §103 as being unpatentable over USPN 5,742,573 issued to Hajjar in view of Tsutsui and in further view of Kusumoto.

Claims 1, 4, and 5 depend from Claim 45 and are patentable based at least in part on that dependency.

Claims 14, 17, 18 and 23 depend from Claim 46 and are patentable based at least in part on that dependency.

Claims 25, 28, and 29 depend from Claim 47 and are patentable based at least in part on that dependency.

Claims 35, 38, 39, and 43 depend from Claim 48 and are patentable based at least in part on that dependency.

Grounds For Rejection D Claims 2, 3, 15, 16, 26, 27, 36, and 37 stand rejected under 35 USC §103 as being unpatentable over Hajjar in view of Tsutsui, in view of Kusumoto and in further view of USPN 5,477,333 issued to Shoda.

Claims 2, 3, and 5 depend from Claim 45 and are patentable over the cited references based at least on their dependence from Claim 45.

Claim 16 depends from Claim 46 and is patentable over the cited references based at least on its dependence from Claim 46.

Claims 26 and 27 depend from Claim 47 and are patentable over the cited references based at least on their dependence from Claim 47.

Claims 36 and 37 depend from Claim 48 and are patentable over the cited references based at least on their dependence from Claim 48.

Grounds For Rejection E – Claims 1, 4, 9, 14, 17, 25, 28, 34, 35, and 38 stand rejected under 35 USC §103 as being unpatentable over US Pub 2002/0089906 to Faucett in view of Tsutsui and in further view of Kusumoto.

Claims 1, 4, and 9 depend from Claim 45 and are patentable based at least in part on that dependency.

Claims 14 and 17 depend from Claim 46 and are patentable based at least in part on that dependency.

Claims 25, 28, and 34 depend from Claim 47 and are patentable based at least in part on that dependency.

Claims 35 and 38 depend from Claim 48 and are patentable based at least in part on that dependency.

Conclusion: In view of the foregoing remarks, the Applicant respectfully submits that the pending claims are in condition for allowance. Consequently, early and favorable action allowing these claims and passing the application to issue is earnestly solicited.

Respectfully submitted,
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April 25, 2008

APPENDIX OF CLAIMS INVOLVED IN THE APPEAL

1. (previously presented) The system of Claim 45, further comprising:

   an error term generator configured to generate an error term;

   an adaptation coefficient configured to regulate a rate at which the error term modifies an actuator control signal; and

   an actuator control signal generator to generate the actuator control signal, wherein the actuator control signal is a function of a prior actuator position, the error term and the adaptation coefficient.

2. (original) The system of claim 1, wherein the error term generator is configured to generate the error term using a FES signal as input.

3. (original) The system of claim 2, wherein the error term generator is configured to sample the FES signal and use an A-to-D converter to produce the error term.

4. (original) The system of claim 1, wherein the error term generator is configured to calculate the error term for every new actuator control signal generated by the actuator control signal generator.

5. (original) The system of claim 1, wherein the actuator control signal generator additionally comprises:

   a coefficient generator to generate coefficients as a function of inputs comprising the adaptation coefficient and the error term; and

   a Fourier subroutine to generate the actuator control signal using the coefficients generated.

6. (cancelled)

7. (cancelled)

8. (cancelled)

9. (original) The system of claim 1, wherein the actuator control signal generator is configured, if an angular disk speed of the optical disk drive is sufficiently high, to shift a phase of terms within the actuator control signal to reduce actuator resonance.

10. (cancelled)

11. (previously presented) The system of claim 45, wherein the baseline actuator control signal includes an AC component.

12. (cancelled)

13. (previously presented) The system of claim 45, wherein the baseline actuator positioning routine is configured to set the baseline actuator control signal to approximately 75% of the actuator control signal which resulted in the maximum of the obtained SUM signals.

14. (previously presented) The processor readable medium of Claim 46, having further instructions for:

    stepping through and applying actuator control signals to the actuator to step the generating an error term;

    regulating a rate at which the error term modifies an actuator control signal using an adaptation coefficient; and

    generating an actuator control signal as a function of a prior actuator position, the error term and the adaptation coefficient.

15. (original) The processor-readable medium of claim 14, comprising processor-executable instructions for generating the error term using a FES signal as input.

16. (original) The processor-readable medium of claim 15, comprising processor-executable instructions for sampling the FES signal and using an A-to-D converter to produce the error term.

17. (original) The processor-readable medium of claim 14, comprising processor-executable instructions for calculating the error term for every new actuator control signal generated by the actuator control signal generator.

18. (original) A processor-readable medium as recited in claim 14, wherein generating the actuator control signal comprises instructions for:
generating coefficients as a function of inputs comprising the adaptation coefficient and the error term; and
calculating a Fourier series to generate the actuator control signal using the coefficients generated.

19. (cancelled)

20. (cancelled)

21. (cancelled)

22. (cancelled)

23. (previously presented) The processor-readable media of claim 46, wherein the instructions for setting the baseline actuator control signal comprise instructions for setting different baseline actuator control signals for different sectors of the disk.

24. (cancelled)

25. (previously presented) The method of Claim 47, further comprising:

generating an error term;

regulating a rate at which the error term modifies an actuator control signal using an adaptation coefficient; and

generating an actuator control signal as a function of a prior actuator position, the error term and the adaptation coefficient.

26. (original) The method of claim 25, additionally comprising generating the error term using a FES signal as input.

27. (original) The method of claim 25, additionally comprising sampling the FES signal and using an A-to-D converter to produce the error term.

28. (original) The method of claim 25, additionally comprising calculating the error term for every new actuator control signal generated by the actuator control signal generator.

29. (original) The method of claim 25, wherein generating the actuator control signal comprises:

generating coefficients as a function of inputs comprising the adaptation coefficient and the error term; and

calculating a Fourier series to generate the actuator control signal using the coefficients generated.

30. (cancelled)

31. (cancelled)

32. (cancelled)

33. (cancelled)

34. (original) The method of claim 25, wherein generating the actuator control signal additionally comprising, if an angular disk speed of the optical disk drive is sufficiently high, shifting a phase of terms within the actuator control signal to compensate for actuator harmonics.

35. (previously presented) The system of Claim 48, further comprising:
means for generating an error term;
means for regulating a rate at which the error term modifies an actuator control signal using an adaptation coefficient; and
means for generating an actuator control signal as a function of a prior actuator position, the error term and the adaptation coefficient.

36. (original) The focusing system of claim 35, additionally comprising means for generating the error term using a FES signal as input.

37. (original) The focusing system of claim 35, additionally comprising means for sampling the FES signal and using an A-to-D converter to produce the error term.

38. (original) The focusing system of claim 35, additionally comprising means for calculating the error term for every new actuator control signal generated by the actuator control signal generator.

39. (original) The focusing system of claim 35, wherein the means for generating the actuator control signal comprises:
means for generating coefficients as a function of inputs comprising the adaptation coefficient and the error term; and
means for calculating a Fourier series to generate the actuator control signal using the coefficients generated.

40. (cancelled)

41. (cancelled)

42. (cancelled)

43. (previously presented) The focusing system of claim 48, wherein the means for setting the baseline actuator control signal comprise means for setting different baseline actuator control signals for different sectors of the disk.

44. (cancelled)

45. (previously presented) A system for establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within the optical disk drive, the system comprising a baseline actuator positioning routine configured to:

apply actuator control signals to the actuator to step the actuator through a full range of focus;

obtain a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors;

identify one of the obtained SUM signals; and

set the baseline actuator control signal according an applied actuator control signal which resulted in the identified one of the obtained SUM signals.

46. (previously presented) A processor-readable medium comprising processor-executable instructions for focusing optics within an optical disk drive, the processor-executable instructions comprising instructions for:

applying actuator control signals to the actuator to step the actuator through a full range of focus;

obtaining a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors;

identifying one of the obtained SUM signals; and

setting the baseline actuator control signal according an applied actuator control signal which resulted in the identified one of the obtained SUM signals.

47. (previously presented) A method of establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within the optical disk drive, the method comprising:

applying actuator control signals to the actuator to step the actuator through a full range of focus;

obtaining a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors;

identifying one of the obtained SUM signals; and

setting the baseline actuator control signal according an applied actuator control signal which resulted in the identified one of the obtained SUM signal;

48. (previously presented) A system for establishing a baseline signal for application to an actuator within an optical disk drive to focus optics on an optical disk within an optical disk drive, the system comprising:

means for applying actuator control signals to the actuator to step the actuator through a full range of focus;

means for obtaining a SUM signal at each step, the SUM signal being a sum of signals received from a plurality of focus sensors;

means for identifying one of the obtained SUM signals; and

means for setting the baseline actuator control signal according an applied actuator control signal which resulted in the identified one of the obtained SUM signal.

Evidence Appendix

There is no extrinsic evidence to be considered in this Appeal. Therefore, no evidence is presented in this Appendix.

Related Proceedings Appendix

There are no related proceedings to be considered in this Appeal. Therefore, no such proceedings are identified in this Appendix.